

## **Revising the Environmental Protection Agency's Guidelines for the Derivation of Aquatic Life Ambient Water Quality Criteria**

Tala Henry  
Toxicologist  
U.S. EPA Office of Water  
(202) 566-1323  
henry.tala@epa.gov

**Authors:** Aquatic Life Criteria Guidelines Committee<sup>1,2,3</sup>

<sup>1</sup>U.S. Environmental Protection Agency (U.S. EPA)

<sup>2</sup>U.S. Fish and Wildlife Service

<sup>3</sup>NOAA Fisheries

**Keywords:** aquatic life, wildlife, water quality, criteria, Clean Water Act

The U.S. Environmental Protection Agency's (U.S. EPA) Office of Water (OW) develops ambient water quality criteria (AWQC) to protect aquatic organisms from chemical pollutants pursuant to Section 304(a) of the Clean Water Act. Currently, AWQC for aquatic life protection are derived according to the 1985 Guidelines for Derivation of Ambient Water Quality Criteria for the Protection of Aquatic Life and Their Uses. To ensure that AWQC are derived from the best available science, the U.S. EPA has formed an inter-agency Guidelines Committee and several subcommittees to review the state of the science and recommend new or improved approaches for deriving AWQC. This collaborative effort includes scientists from the U.S. EPA/OW, Office of Research and Development, Office of Pesticides Programs, U.S. Fish and Wildlife Service, and NOAA Fisheries. The Committee is using the U.S. EPA's Guidelines for Ecological Risk Assessment as the organizing framework for revising the Guidelines. The Committee is examining a variety of approaches and methods to address several key areas including (1) the formulation of residue-based criteria that account for multiple exposure routes (e.g., dietary vs. water), bioaccumulation potential, and tissue residue-based toxicity relationships to better assess toxicity of bioaccumulative chemicals; (2) the development of methods to better address additional ecological entities (e.g., plants and aquatic-dependent wildlife) and attributes (e.g., endpoints other than survival, growth, and reproduction); (3) the feasibility of using toxicokinetic modeling to quantify organism responses to time-variable chemical exposures as a basis for improving current recommendations on the frequency and duration of criteria exceedences; (4) the feasibility of applying population modeling to integrate effects on organism survival, growth, and reproduction and extrapolating these effects to the population level; (5) the feasibility of characterizing risk to assemblages of aquatic species; and (6) quantifying the uncertainty associated with AWQC. The revised Guidelines will be used by the U.S. EPA to derive national recommended 304(a) ambient water quality criteria. These recommended criteria may be used by states and authorized tribes in setting water quality standards as required under Section 303(c) of the Clean Water Act.